

TESTIMONY OF  
EDWARD BODMER  
ILLINOIS COMMERCE COMMISSION  
DOCKET NO. 80-0519

1. Q. Will you please state your name and business address?

A. My name is Edward Bodmer and my business address is  
527 East Capitol Avenue, Springfield, Illinois 62706.

2. Q. By whom are you employed?

A. I have been employed by the Illinois Commerce Commission,  
Public Utilities Division, Accounts and Finance Department  
since June, 1979.

3. Q. Please describe your educational background.

A. I graduated from the University of Illinois Urbana Campus  
in May of 1979 with a B.S. degree in Finance. I also  
earned the equivalent of a B.S. in economics and completed  
17 credit hours of mathematics. Since graduation I have  
completed course work in accounting through correspondence  
at the University of Illinois. In August of 1980 I attended  
a two-week NARUC seminar at Michigan State University on  
Public Utility Regulation.

4. Q. Did you receive any honors as an undergraduate?

A. Yes. I graduated with highest honors and a 5.0/5.0 scholastic average. I was awarded University Honors and the Bronze Tablet in 1979. I was elected to the Beta Gamma Sigma honorary business fraternity as a junior and I won the "Scholarship Key Award" given by the Alpha Kappa Psi professional business fraternity as a senior.

5. Q. What have been your duties and responsibilities at the Commission?

A. My work has been principally in the area of computer applications to financial analysis in regulation. In this regard I have done substantial work on the Commission's financial forecasting model and I have given seminars at the Energy and Environmental Systems Division of Argonne National Laboratory and the NARUC Subcommittee on Computers and Economics. In August 1979 I attended a conference on the Regulatory Analysis model given by the National Regulatory Research Institute in Columbus, Ohio. I have testified on cost of capital in Union Electric Company Docket 80-0370, and Continental Telephone Docket 81-0114. I have also testified on CWIP in the rate base vs. AFUDC in Illinois Power Dockets 80-0167 and 80-0544 utilizing a computer simulation model.

6. Q. What is the purpose of your testimony?

A. My purpose is to evaluate the proposal of Willowbrook Utility Company to capitalize interest costs associated with excess capacity of the Plum Creek Wastewater Treatment Plant. I will use a financial simulation computer model developed by the Illinois Commerce Commission Accounts and Finance Staff to make my assessment.

7. Q. Please generally outline the structure of your testimony.

A. My testimony could be segregated into the following three sections:

- (1) Initial general comments, assumptions, and postulates concerning Willowbrook Utility Company's proposal.
- (2) The methodology used in my study and the suggested accounting procedures for Willowbrook.
- (3) Results and conclusions derived from the model and the implications for Willowbrook Utility Company and its rate payers.

### Preliminary Objectives

8. Q. Please discuss the general nature of the problem for Willowbrook Utility Company, its customers, and the Commission.

A. Willowbrook Utility Company has built a sewage treatment plant with capacity to serve roughly 750 customers while only approximately 150 customers are presently using the facility. Apparently the plant does involve economies of scale which could yield benefits to all customers of the company, yet the question of exactly who should pay for the financing costs of the capital tied up in the plant remains unresolved. Simply stated, the problem is one of excess reserve capacity.

Virtually every capital intensive firm has some degree of excess capacity at one time or another; the very nature of building a large plant involves some temporary unused capacity. The regulatory issue regarding excess reserve, however, is one of degree. "Normal" unused capacity does not require any special regulatory adjustments from either a theoretical or a practical standpoint. On the other hand, when excess reserve reaches some very high level (this exact level is obviously very undefined, yet I think Willowbrook's plant is clearly above any demarcation point),

determination as to who should finance excess capacity becomes a question. In general, the issue involves:

- (1) How (and whether or not) the company should be allowed to earn its cost of capital?
- (2) How to develop tariffs which are most equitable to customers of various different time periods -- the so called inter-generational equity issue.

A few available options for handling very substantial excess capacity could be delineated as follows:

- (1) Leave the excess capacity in rate base:  
Although this is how "minor" excess reserves are generally treated, in the case of substantial unused capacity, this option forces customers who happen to be hooked up to the system in the early years to finance the benefit of the economies of scale which will accrue to all customers in the later years of operation.
- (2) Take the excess reserves out of rate base and do not allow a return on them: This method requires stockholders to subsidize the unused capacity by not earning their cost of capital. The option should only be considered

if a determination of management inefficiency is made by the Commission.

- (3) Charge future customers with the carrying cost of the excess capacity: This option is based on an intergenerational equity theory. The argument establishes that the basic reason for the excess reserve capacity is the fact that the plant is not fully utilized at the present time. If the plant had to be built larger than presently necessary to serve all customers and take advantage of economies of scale, some could postulate that it might be unfair to make present rate payers or the company finance the carrying cost of that excess capacity. It is, after all, the future customers of the utility who will receive the benefit of having this capacity made available to them.

9. Q. Do you have any initial comments concerning the general nature of Willowbrook Utility Company's proposal?

A. The Illinois Commerce Commission has a basic responsibility to establish rates which are "fair and reasonable". Inherent in this function is a responsibility to maintain the financial integrity of a utility company. This notion suggests that a utility company should be allowed the opportunity to

earn a return on net assets sufficient to exactly cover its cost of capital. In the present case if the Commission disallows capitalization and does not grant any return on a major portion of Willowbrook's assets, neither would financial integrity be maintained nor would (future) rates be fair and reasonable. This could represent a significant precedent if the Commission does not establish that management was imprudent. On the other hand, if the Company's proposal provides an innovative solution to a difficult problem, the suggestion (whether precedent-setting or not) must be evaluated on its own merits. Staff's financial simulation model will aid in determining the relative advantages and disadvantages of the Company's suggestion.

10. Q. Do you have any other observations prior to discussing the model?

A. Yes. Inherent in consideration of Willowbrook's capitalization proposal is an evaluation of management's original decision to build the sewage treatment plant. I am not qualified to make an evaluation of management and a prospective financial model would not be of much assistance in a determination of the prudence of a five year old management decision. I do believe however, that management efficiency cannot be gauged solely on the basis of whether a particular decision turned out to be a success or failure.

Instead of using "twenty-twenty hindsight" management effectiveness should be evaluated in light of information which was available, and conditions which existed at the time the decision was made. The balance of my testimony will assume that management's decision was in fact prudent since to my knowledge there is no evidence to the contrary.

11. Q. Please describe some general principles regarding the financial modeling of a regulated utility firm.

A. A very important principle first of all is realization that a model must not be misconstrued as attempting to predict the future with one hundred percent accuracy. Instead of being a crystal ball, a good financial simulation measures the financial, tax, and revenue implications of a variety of "what if" situations. A model must additionally be able to effectively analyze the effects of certain "controlling" exogenous variables (in the instant case for example the number of new customers and the method of capitalization could be considered such "controlling variables"). It should be obvious finally, that many assumptions have to be made in any prospective model. These assumptions however must not be hidden; they should rather be explicated in discussion and outputs of the model.

12. Q. Please be more specific on the objectives of Staff's computer model.



A. The goals of using our financial model in this particular case can be separated into financial or accounting objectives and economic objectives. The financial considerations include determining whether the proposal in fact permits the Company to earn its cost of capital (no more and no less); whether the proposal is reasonable from a cash flow and risk standpoint; and whether or not the capitalized interest can properly be recognized as income. If the Commission concludes that the Company is in fact somehow responsible for the excess capacity, then the model should be able to determine exactly what the implications are of not allowing a return on a significant portion of the Company's capital structure.

From an economic standpoint, the proposal raises significant questions surrounding inter-generational cross-subsidies. Would, for instance, capitalization of interest and subsequent contribution mean that future developers are unfairly subsidizing present customers or vice versa? Finally, the model should evaluate the pros and cons of issues involving "up front" payments through contributions versus increases in monthly bills through a swelling rate base.

#### Methodology

13. Q. Please describe exhibit AFR-1.0.

A. To explain certain algorithms of the model this exhibit

embodies the following improbable assumptions which will subsequently be dropped:

- The income tax rate is zero.
- No new development occurs for four years, but in the fifth year the plant is suddenly filled to capacity by new customers.
- The only capitalization employed by the Company is short-term debt at a constant cost of 15%.
- O&M expenses, revenue taxes, and property taxes are assumed to be zero.

Given these very simplistic assumptions, some of the logic of the model can be explained. First of all, the depreciation expense is calculated by dividing 20% of the assumed \$1,000,000 plant which is in service by a 67 year book life (reflecting the company's 1.5% rate). The depreciation is accumulated on the balance sheet and deducted from rate base. Since depreciation expense is a non-cash item on the income statement, it also represents internal cash generation.

The interest capitalized (AFUDC) is calculated by applying the short-term debt rate to the plant held for future use (whenever the balance of short-term debt is greater than the plant held for future use balance). To effectuate

compounding, the following formulas are used in calculating capitalized interest:

$$\text{Interest Capitalized} = \text{Plant held at beginning of period} \times \frac{(\text{capitalization rate})}{(1 - \text{capitalization rate})}$$

this is equivalent to:

Capitalization rate =

$$\frac{\text{Interest Capitalized}}{\text{Plant held at beginning of period} + \text{Interest Capitalized}}$$

Where:

Plant held at end of period = Plant held at beginning of the period + Capitalized interest.

Since capitalized interest is non cash income, it must be deducted from income in determining financing requirements.

The contributions in aid of construction are calculated by multiplying the plant held for future use balance (including capitalized interest) by the ratio of new customers to available customers (where the number of available customers

is equivalent to the total customer capacity less customers already hooked up). This contribution of course represents working capital inflow on the source and application of funds statement and reduces financing requirements.

14. Q. Please explain the relationship between the return on rate base, capitalization rate, and the capital structure ratios incorporated in the model.

A. Staff's financial model serves to exemplify two important regulatory principles which were not made clear in Willowbrook's presentation:

- (1) The difference between return on equity as calculated by the "capitalization method" and the "net-income method".
- (2) The principle of keying-off short term debt in calculating rate of return on rate base and thus equating the balance of the capital structure to the rate base.

The capitalization method for determining return on rate base imputes a specified capital structure to a rate base in establishing return on equity. This method, espoused

in most rate cases, does not explicitly consider assets other than those included in the rate base. A return on equity under the net income method, on the other hand, is simply determined by dividing equity into net income. This represents the rate of return in fact earned by shareholders. If the rate base is exactly equal to the capitalization of a company, then it is easy to demonstrate that return on equity under the capitalization method is equivalent to return on equity under the net income method. However, since plant held for future use is not included in rate base, if the return on plant held for future use differs from the return on rate base, a differential can occur as between the net income equity return and the capitalization equity return.

Where, (as Willowbrook proposes), the capitalization rate is derived from the short-term debt interest rate, then the return on equity under the capitalization method can still be equated to the net income return. This however can occur only if, when deriving the capital structure ratios in the capitalization return on equity method, only the excess of short-term debt over the net assets subject to capitalization is included in these ratios to establish rate of return on rate base.

The model utilizes this methodology of including only "excess short-term debt" in capitalization when calculating the "Equity Return-Capitalization" figure. To derive a return on rate base the above option suggests that only the short-term debt in excess of plant held for future use should be included in Willowbrook's (or Kankakee's) capital structure in a rate case. The following analogy further illustrates this principle:

Assume the following balance sheet:

<u>Assets</u>		<u>Capitalization</u>	
Plant held for future use	800	Short term debt	900
Rate base	<u>200</u>	Equity	<u>100</u>
Totals	1000		1000
Cost of Equity		15%	
Cost of short-term debt		10%	

Providing a return equal to cost of capital requires formulation of return on rate base as follows:

	<u>Amount</u>	<u>Percent</u>	<u>Cost</u>	<u>Weighted Cost</u>
Short-term debt in excess of plant held for future use(900-800)	100	50%	10%	5%
Equity	<u>100</u>	<u>50%</u>	15%	<u>7.5%</u>
Total	200	100%		12.5%

To calculate net income return on equity:

Operating Income (12.5% x 200)	=	25
Add: Capitalized Interest(10%x800)	=	80
Less: Interest expense(10%x900)	=	<u>90</u>
Net Income (25 + 80 - 90)	=	15
Equity		100
Net income return on equity (15/100)	=	15%

Alternatively including either all \$900 of short-term debt in the capital structure, or including no short-term debt would have caused a differential as between the net income method and the capitalization method. In this case the rate of return does not cover the cost of capital.

15. Q. Please outline some of the tax law considerations relevant

to Willowbrook's capitalization proposal that you have assumed in your model.

- A. It is my understanding that the sewage treatment plant is 37% subject to 60 month straight line amortization and 63% subject to 40 year ADR depreciation. Exhibit AFR 1.1 demonstrates the double declining portion of the 20% in service part of an assumed tax basis of \$840,000. I am also informed that as contributions are received it is probable that the IRS will treat the transaction as analagous to the sale of an asset where tax would be paid on the cash received less the net undepreciated tax value of the plant. The following example illustrates this point:

Tax basis of plant	1,000
Accumulated tax depreciation	750
Accumulated capitalized interest portion of the plant	500
Net tax basis (1,000 - 750) =	250
Amount of contribution (1,000 + 500) =	1,500
Tax at 50% (1,500 - 250) x 50% =	625

For tax purposes, the following journal entry could be made:



Cash 1,500

Accumulated tax depreciation 750

Tax basis of plant 1,000

Taxable Income (gain on sale of  
an asset) 1,250

Furthermore, tax depreciation ceases as soon as that portion of plant becomes a contribution.

16. Q. Please describe the effects of tax depreciation on plant held for future use.

A. The financial simulation model demonstrates some very interesting phenomena caused by the tax law. Specifically, although the plant held for future use has no direct effect on the income statement, the facility reduces taxable income through tax depreciation expense and subsequently increases taxable income through the tax basis gain on the sale of the asset. This variance in the timing of the recognition of income as between the tax return and financial records brings up the perennial issue of flow-through vs. normalization. In this case, however, the interperiod tax allocation issue does not affect current revenue requirements. Since the plant held for future use is being considered a "below-the-line" asset, the related income and expenses should not

impact operating income. Thus, due to the non-rate base nature of the treatment plant, if the book/tax timing difference is flowed-through, a significant reduction in below-the-line taxes will cause a direct increase in net income. If the taxes related to the treatment plant are deferred, on the other hand, the net income should not be impacted by the tax depreciation on the plant held for future use portion of the Plum Creek Sewage Treatment Plant.

Instead of providing an exhaustive dissertation on the pros and cons of interperiod tax allocation, I will assume normalization of all book/tax timing variances for the balance of my presentation.

17. Q. Please explain AFR-1.2 where you deduct accumulated deferred taxes related to plant held for future use from the base for applying a capitalization rate.
- A. A crucial flaw in Willowbrook's proposal is the fact that deferred taxes resulting from the normalization of timing differences due to the plant held for future use are not deducted from the capitalization basis. If these deferred taxes are used in reducing current rate base, an inter-generational equity subsidy arises since one group of customers receives the current tax benefits while another group (the future developers) must eventually pay the taxes; if the deferred taxes are deducted from neither the

rate base nor the capitalization base, the company earns a return on cost free capital. To delineate reasons for applying this reasoning, I will first describe the conventional treatment of deferred taxes and subsequently discuss reasons for alternate accounting in the instant case.

Accumulated deferred taxes are normally deducted from rate base premised on the rationale that rate payers have provided more cash through income tax expense than is actually outlayed by the company. If the cash flow is used for example to retire short-term debt, granting a return on the non-existent capital would be highly inappropriate. As the deferral reverses, taxes paid are greater than the tax expensed and the short-term debt balance and the rate base must be restored. The benefit of the book/tax timing difference to customers and the company is from cost free capital in those years where tax expense is greater than taxes paid.

This "traditional" principle, however, cannot be applied in the present case. Taxes charged to expense are again greater than taxes actually paid yet in this instance current rate payers have not provided the cash flow since there should be no difference in above-the-line income tax expense caused by the plant held for future use.\* In

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\*Furthermore, it is my understanding that Willowbrook utility receives cash flow from its parent due to a reduction in income tax liability on the consolidated return.

this case the amount of taxes expensed is again greater than the amount paid, however when the deferral subsequently reverses and the amount paid is greater than the amount expensed, the cash flow is properly paid by the developers making contributions. The taxes are not paid by the general ratepayers of the company (as the taxes should be related to the causal factor which was the contribution). Since current customers of Willowbrook do not provide the reduction in invested capital represented by these deferred taxes, it follows that deferred taxes related to plant held for future use should not be deducted from the rate base. This cash flow, however, is outlayed by future customers who provide the carrying costs of capital as well as the tax basis of plant (if Willowbrook's proposal is adopted). The carrying costs of capital provided by these future customers should not cover a return on any more capitalization than was actually employed in financing the sewage treatment plant. This principle is demonstrated in the following simple analogy:

<u>Period</u>	<u>1</u>	<u>2</u>	<u>3</u>	<u>4</u>
Cash outlay at beginning	1,000	0	0	0
Tax depreciation	0	500	500	0
Cash inflow from contribution	0	0	0	1,000
Book depreciation	0	0	0	0
Cash flow from the consolidated income taxes (at 50%)	0	+250	+250	-500
Short-term debt balance	1,000	750	500	0
Cost of capital at 10%	100	75	50	0

(Note: if the cash flow did not exist from the consolidated tax return, then the short-term debt balance could remain at 1000 until the fourth period.)

Exhibit AFR-1.2 demonstrates the effect of not deducting deferred taxes from the capitalization base or the rate base vs. deducting the deferrals from the capitalization base.

From a practical standpoint, although I realize that in the present docket rate base is insignificant as the filed rates are not sufficient to cover operating expenses, my recommendation does not change. Capitalization must never be a "catch all" for items not included in tariffs proposed by a company.

Thus although not deducting deferred taxes from the capitalization base might allow a return on some capital, this is due to the tariffs filed in Docket 80-0519 and not because of the method of capitalizing interest.

18. Q. Do you have any additional comments regarding the tax implications of Willowbrook's capitalization proposal?

A. Yes. The Company suggests that by capitalizing interest net of tax, future developers would gain a substantial savings over the actual interest rate. This statement should immediately raise suspicions for two reasons:

(1) It seems to suggest that a gross-deferral method of capitalization would result in different cash flow from the net of tax method.

(2) It seems to suggest that only one half of the interest expense capitalized would eventually have to be recovered from ultimate customers.

If cash received from contributions is treated by the IRS as similar to the sale of an asset, then all cash received from the capitalized interest portion of contributions would represent taxable income (because the interest capitalized on the books was expensed for tax purposes in the year in which it was incurred). The addi-

tional taxes created by the capitalized interest contribution should properly be borne by the developers making the contributions. This of course increases the required contribution.

If Willowbrook Utility Company will in fact be subject to taxes on the capitalized interest portion of any contribution, capitalizing by "gross-deferral" would be easier to administer than the net of tax methodology. By utilizing gross capitalization, a tax deferral representing the timing difference between currently expensing interest on the tax return and capitalizing interest on the books is created. This deferral would be reversed through increased tax expense in the year of contribution and no net gain or loss would appear on the income statement. If the company capitalizes net of tax, on the other hand -- only collecting the net amount from developers -- Willowbrook would either have to "eat" the tax consequences of the contribution on the income statement, or they would have to write up the net amount of the contribution back to the gross amount.

19. Q. Please summarize the basic conclusions and recommendations derived in your analysis.

A. Some of the more important conclusions include:

- In general the Company's proposal to capitalize interest is valid.
- The rate of capitalizing interest must be carefully determined and related to the rate base return. In this instance the short-term debt interest rate can be utilized only if short-term debt is keyed-off against the plant held for future use in deriving a rate of return on rate base.
- The basis for capitalizing interest must be reduced for the deferred taxes from the effects of tax depreciation on the plant held for future use.
- Capitalizing using a gross deferral method provides the best accounting mechanism for Willowbrook Utility Company's present situation.
- Only the capitalized interest portion of plant held should be treated as contributions while the non-capitalized portion of the facility should be included in rate base on a pro-rata basis as new customers hook up.



- The implications of the investment tax credit must be carefully scrutinized.
- Provisions must be made regarding the possible "open-ended capitalization" effects of Willowbrook's proposal if full utilization of capacity is never achieved.

### Results and Conclusions

20. Q. Given the methodology described above to develop the structure of the model, please discuss the scenarios studied to evaluate the advantages and disadvantages of Willowbrook's proposal as adjusted.

A. The principle variables simulated are:

- (1) The number of new customers
- (2) The method of capitalizing interest.

The scenarios could be delineated in the following matrix:  
Note that all scenarios assume no operations and maintenance expense and no property or revenue taxes.

# Customer Growth Assumptions

Type of	Gross deferral Method	<u>"Optimistic"</u> 100 customers in years 2-6	<u>"Pessimistic"</u> 25 customers years 2-20	<u>"Delayed"</u> no customers for 4 years than 100 per year.	<u>"Open-Ended"</u> optimistic scenario except 100 customers never hook u
		Scenario #1	Scenario #2	Scenario #3	Scenario #4
Capitalizing	Net Capitalization with no mark-up	Scenario #5	Scenario #6	Scenario #7	
Interest	Zero Capitalization	Scenario #8	Scenario #9	Scenario #10	
	Rate base inclusion	Scenario #11	Scenario #12	Scenario #13	
	Pro Rata Rate Base inclusion of Non- AFUDC portion.	Scenario #14	Scenario #15	Scenario #16	

Exhibit AFR-1.5 demonstrates the outputs for Scenarios #1, #5, #8, #11, #14 and #4.

21. Q. Please discuss the graphs presented in Exhibit AFR-1.3 using the gross deferral Scenarios #1, #2, and #3.

A. Graph #1 compares the average bill under the gross deferral capitalization method for various levels of customer growth. The graph vividly demonstrates that as more customers are added and help finance the 20% original in service portion of the plant, the average bill to all customers declines. The reason for this pattern is that when new customers make contributions

for the non-AFUDC portion of the plant, they in effect "buy" a percentage of the plant. However, these customers must also pay for the original 20% in service portion of the rate base through their monthly bill. Thus because new customers more than once pay for the financing of rate base, the average bill of the original customers substantially declines.

Exhibit AFR-1.5 demonstrates that revenue requirements do not decline drastically under any customer growth scenario and that the decrease in price per customer is due mainly to the increasing quantity of rate payers.

Graph #2 compares the cash flow under the three customer growth scenarios. The increased cash flow from contributions (including the capitalized interest portion) is highlighted by this graph. The model demonstrates that under the "delayed" customer growth scenario cash flow is also delayed, yet when the cash flow is produced, it is greater because of more capitalized interest in each contribution.

Graph #3 compares the capitalized interest for the 3 scenarios. The effects of new customers on capitalized interest became obvious on this exhibit -- the more new customers the lower the capitalized interest.

22. Q. Please discuss the graphs in Exhibit AFR-1.4 which compare the various different methods of capitalization assuming the "pessimistic" customer growth scenarios.

A. Graph #4 compares the effects on a customer's bill of capitalizing gross or capitalizing net or taking no capitalization. Because of increased financing to cover negative income, the tax expense is reduced under net or zero capitalization causing the lower bills.

Graph #5 analyzes the net income under the alternate methods of capitalization of interest. The net income under the net or zero methods causes negative retained earnings which is clearly destructive to the company and would remain problematic for many years to come. In these scenarios the negative income declines more and more each year.

Graph #6 demonstrates the diminished cash flow caused by scenarios which produce negative net income. Notice again that this situation gets worse and worse as time goes by.

Graph #7 highlights the amount new customers would have to contribute each year. I will note here again that new customers "multiply" pay for the financing of plant through contribution and through rate base under any of the methods. A superior proposal, in my opinion would be to

treat the capitalized interest portion of the plant as contributions, while including a pro-rata share of the non-capitalized portion as rate base with new customer growth.

23. Q. Please elaborate on the equity problems in Willowbrook's proposal and the benefits of including a pro-rata share of the non-capitalized portion as rate base with new customers.

A. The problems become very obvious if we assume only 2 customers and zero financing costs. Assume customer #1 pays for half of the plant through rate base and customer #2 pays for the other half of the plant through a contribution 2 years later. If the plant cost \$1,000, the following would occur under Willowbrook's proposal:

Year #	1	2	3	4
Rate Base	500	500	500	500
Return @ 10%	50	50	50	50
Price per customer without rate reduction	50	50	50	50
Contribution	0	0	500	0
Revenues without rate reduction	50	50	100	100
Price with rate reduction	50	50	25	25

In this case in year 3, Revenues exceed costs by \$50 and the company earns a windfall until it comes in for a rate case. Customer #2 furthermore must obviously pay substantially more than Customer #1 to be tied to the system (he must pay a contribution of 500 plus the monthly bill while customer #1 only pays the monthly bill).

A far more equitable approach, in my opinion, would be to include the additional 500 of plant used by Customer #2 in rate base as soon as the customer hooks up. The following would occur under this methodology:

Year #	1	2	3	5
Rate Base	500	500	1000	1000
Cost of Capital @ 10%	50	50	100	100
Price per customer	50	50	50	50
Revenues	50	50	100	100

In this case inter-generational equity has been maintained and the company does not have the possible windfall.

On the other hand, having customers contribute the capitalized interest portion is reasonable as this reflects benefits from the economies of scale.

24. Q. Please elaborate on problems with including all of the plant as current "used and useful" rate base.

A. This policy would have the following four faults:

- (1) The option has problems in that the company probably could not realize a sufficient return on such a large rate base to cover costs of capital. This would simply equate to stockholders again financing the benefits of economies of scale through not earning their cost of capital.
- (2) The policy creates intergenerational equity problems as can be illustrated by the simple analogy used in the previous question. In this instance the following would occur:

<u>Year</u>	<u>1</u>	<u>2</u>	<u>3</u>	<u>4</u>
Rate Base	1000	1000	1000	1000
Cost of Capital @ 10%	100	100	100	100
Price per customer with rate decrease	100	100	50	50
Price per customer with- out rate de- crease	100	100	100	100
Revenues with rate decrease	100	100	100	100
Revenues with- out rate de- crease	100	100	200	200

The rate decrease from 100 to 50 between years 3 and 4 is inequitable to customer #1. Scenarios #11, 12 and 13 demonstrate the revenue effects in this case.

- (3) The policy creates possibilities for windfalls to the company. Using the above illustration this would be represented by the 200 of revenues without a rate decrease less the cost of capital of 100 in years #3 and #4.
- (4) As Scenarios #11, #12 and #13 demonstrate, the average bill would be so high under this alternative that it is doubtful any new customers would want to hook up to the system with these distorted price signals. Given the extreme importance of customer growth, highlighted previously, this option might create a vicious circle where the benefits of economies of scale would never be utilized.

Graph #8 demonstrates that pro-rata rate base inclusion results in the most equitable customer prices.

25. Q. Do you have any comments regarding the so called open-ended nature of Willowbrook's proposal?

A. Scenario #4 demonstrates that if 100 customers never hook up and capitalization does not stop, the value of plant



held for future use representing only 13% of the plant would have a cost of \$3,642,800 in 36 years (while the rate base would only be approximately \$57,000). This scenario shows that clearly at some point the company must cease capitalization. At this time, the Commission would have two basic options:

- (1) Require the company to write-off the plant as a loss. This alternative recognizes that Willowbrook has the responsibility for demand projection. Furthermore the proposal forces the company to have to "earn" the capitalized interest. The problem in this case is that the only way the company can prevent a loss is to have complete 100% utilization at the established cut-off point -- a situation which may be neither reasonable nor possible.
- (2) Include the plant held for future use as rate base at this cut-off point. This alternative recognizes that any system has some excess reserve which should properly be paid for by the customers of the company. The proposal, however, has two problems in that (1) the company is guaranteed a return no matter how correct or incorrect their demand projections were, and (2) customers must continue to pay for excess reserve on an ad infinitum.

A compromise proposal would be to formulate new contributions based on say 85% of the available customers instead of 100% and require the company to write off the plant after the cut-off point. This suggestion both disallows the company a guaranteed return on the plant held and it requires customers to gradually pay for a fair share of "normal" excess reserve capacity.

26. Q. Please restate the Company's proposal, the faults you find with it, and your alternate method.

A. It is my understanding that Willowbrook Utility Company's suggestion could be represented by the following two proposals:

(1) In effect the company proposes to use a net of tax method for capitalizing interest costs associated with the Plum Creek Waste Water Treatment Facility -- writing up the cost of the plant through time.

(2) As new customers hook up to the system, a proportional amount of the written-up plant would be treated as contributions in aid of construction by these new customers.

This methodology, in my opinion, has the following faults:

- (1) Capitalizing using a net method can be misleading and lead to administrative problems.
- (2) By not deducting deferred taxes related to tax depreciation on the plant held for future use, an inter-generational equity problem arises.
- (3) Treating all of the plant held as contributions could be unfair to certain classes of customers and lead to possible windfall for the company through declining bills.

A solution to the above problems could be represented by the following proposal:

- (1) Utilize a gross deferral method for capitalization of interest where related deferred taxes would be deducted from the capitalization base.
- (2) Only the capitalized portion of the plant held for future use should be treated as contributions; the rest should be included in rate base as new customers connect.

27. Q. Please discuss a possible accounting treatment for your proposal:

A. Entry To Be Made At Time When Interest Expense Is Booked

Miscellaneous Deferred Debits	\$xxx	
Interest Expense		\$xxx

(To transfer to account number 186 a proportionate gross amount of interest expense applicable to Plum Creek Waste Water Treatment Plant which is classified as Plant Held for Future Use in accordance with Illinois Commerce Commission Order Docket Number 80-0519.) A special sub-account is maintained for this entry.

Entry To Be Made At Time When Prospective Customer Makes Payment

Cash	\$xxx	
Contributions in Aid of Construction		\$xxx
Deferred Debit		\$xxx

(To record payment received from (some future rate payer's name) for portion of Plum Creek Waste Water Treatment Plant.) See Illinois Commerce Commission Order Docket Number 80-0519.

Utility Plant In Service	\$xxx	
Plant Held for Future Use		\$xxx
<del>Miscellaneous Deferred Debit</del>		<del>\$xxx</del>

(To reclassify portion of Plum Creek Waste Water Treatment Plant booked to Plant Held for Future Use and Miscellaneous Deferred Debits for which payment had been received from (some future rate payers name).) See Illinois Commerce Commission Order Docket No. 80-0519.

28. Q. Please discuss how the proposal should be controlled by the Commission.

A. Since the proposal represents a new approach, the Company should submit reports to the Commission in six month intervals on an ongoing basis.